Supplemental Financial and Management Information

Program expenses are summarized in the Consolidated Statement of Operations and Changes in Net Position by business line. The following supplemental financial and management information provides a more detailed breakdown of the expenses for each business line. Program performance measures that were not reported in the overview are included for each business line.

SCIENCE AND TECHNOLOGY ACTIVITIES - provide science and tools needed to develop energy technology options, to understand the health and environmental implications of energy activities, and to understand the fundamental nature of energy and matter; provide large scale facilities required in natural sciences to ensure U.S. leadership in the search for knowledge; and apply research and development competencies to help ensure the availability of scientific talent.

		(in millions)
Energy Research		
Biological and Environmental Research	$384	
Fusion Energy	266	
Basic Energy Sciences	762	
High Energy Physics	492	
Nuclear Physics	210	
General Science Program Direction	9	
Laboratory Technology Transfer	38	
Multiprogram Energy Labs - Facility Support	7	
SBIR/SBTT	95	
Superconducting Super Collider	80	
University Science Education	46	
Other Energy Research	16	
Subtotal		$2,405
Science and Technical Information		12
TOTAL		**$2,417**

Energy Research

Biological and Environmental Research - fundamental science in the pursuit of understanding the consequences to health and the environment of energy production, development, and use, including DOE's support of the national Human Genome and Global Climate Change programs, and providing unique national user facilities for the scientific community.

Fusion Energy - research and development needed for an economically and environmentally attractive fusion energy source, namely advancing plasma science, developing fusion science, technology, and plasma confinement innovations, and pursuing fusion energy science and technology as a partner in the international effort.

Basic Energy Sciences - fundamental research on materials sciences, chemical sciences, geosciences, biosciences, mathematical sciences, high performance computing and communications, information infrastructure, and engineering sciences that underpins the DOE missions in energy and the environment, that advances energy related basic science on a broad front, and that provides unique national user facilities for the scientific community.

High Energy Physics - research to understand the nature of matter and energy at the most fundamental level, as well as the basic forces which govern all processes in nature, that requires accelerators and detectors utilizing state-of-the-art technologies in many areas, including fast electronics, high speed computing, superconducting magnets, and high power radio-frequency devices.

Nuclear Physics - research to understand the structure and properties of atomic nuclei and the fundamental forces between the constituents that form the nucleus. Nuclear processes determine essential physical characteristics of our universe and the composition of the matter that forms it.

General Science Program Direction - program management and administration, including personnel and related costs.

Laboratory Technology Transfer - facilitates transfer of technology from Departmental laboratories.

Multiprogram Energy Labs - Facility Support - operation and maintenance of multiprogram laboratories including related management, corrective action, and disposition activities.

Small Business Innovative Research/Small Business Technology Transfer (SBIR/SBTT) - DOE-supported research and development of energy related technology that will significantly benefit U.S. businesses, including a pilot technology transfer program initiative.

Superconducting Super Collider - expenditures are for the orderly termination of this activity.

University Science Education - provides assistance in science education (precollege through postdoctoral), including reactor fuel assistance, scientific instrumentation, and technology transfer.

Other Energy Research - energy research analysis of technology initiatives, independent advisory and oversight of DOE research and development (R&D) and national laboratories, and program management and administration of Energy Research Energy Supply R&D programs.

Science and Technical Information - advances energy and nuclear defense technologies and safeguards U.S. economic and military security through effectively controlling and overseeing the dissemination of DOE's scientific and technical knowledge.

Performance Measures

Initiating Science-Based Programs to Find New Methods for Environmental Cleanup
Initiating science-based programs to find new cost-effective methods for environmental clean-up of DOE sites.

Goals:
Developing a 10-year program plan for bioremediation research and implementing the first phase by March 1996 for clean-up of national laboratory and nuclear weapons production sites.

FY 1996 Results:
The Natural and Accelerated Bioremediation Research Program plan was published in September 1995 in hard copy and on the World Wide Web. The program management structure has been developed, and the first solicitations for research proposals were issued in March 1996, with awards made in July.

Initiating a basic research program effort by September 1996 through an Office of Energy Research (ER) and Office of Environmental Management (EM) partnership in order to provide less costly and more effective cleanup technologies.

ER initiated and provided funding for a pilot research program in support of basic science needs identified by program managers in EM. After full external peer review, 9 research awards were made in February 1996.

Investigating the Causes of Global Climate Change

Continue to provide strong support to the interagency effort to investigate the natural and human causes of global climate change phenomena and reduce U.S. greenhouse gas emissions.

Goals:

Success will be measured in FY 1996 by collecting and analyzing data on atmospheric conditions to enable better assessments, damage prediction, and mitigation for ecosystems by:

- *designing, building, and testing an Atmospheric Radiation and Cloud Station (ARCS) in the Western Pacific by September 1996 to collect critical cloud and radiation data;*
- *completing atmospheric radiation measurements by June 1996 to verify enhanced absorption of solar radiation by clouds to improve the accuracy and predictive capability of global climate models;*
- *completing preparations to measure the absorption of CO_2 from the atmosphere by March 1996; and*
- *implementing experiments that quantify effects of changes in weather and air pollution on forests by June 1996.*

FY 1996 Results:

The first ARCS for the Tropical Western Pacific is being deployed in Papua, New Guinea, and data from the measurements taken at the ARM Southern Great Plains Site in Oklahoma to test the hypothesis of enhanced absorption of solar radiation by clouds are being analyzed. Continuous measurement of CO_2 fluxes between forests and the atmosphere were taken at two sites in the U.S., and a preliminary plan was drafted to expand measurements at other U.S. locations. The site was prepared and equipment purchased for a large-scale field exposure facility to be used to measure the responses of an aspen forest to elevated levels of ozone.

Continuing Peaceful Uses of the Atom

Continue cooperative efforts begun in 1973 for fundamental properties of matter, magnetic confinement fusion, nuclear reactor safety, environmental restoration, and nuclear waste management under the Peaceful Uses of Atomic Energy Agreement (PUAE).

Goals:

Continuing cooperation with Russia under the PUAE, even if the agreement is not formally extended.

Working with the State Department, National Security Council, and the Office of the Vice President to:

- *develop an interagency strategy by December 1995 for renewal of the PUAE agreement;*
- *extend the PUAE umbrella agreement for one year period beginning January 1996; and*
- *extend the four cooperative agreements under the PUAE for their full terms.*

FY 1996 Results:

The U.S. has continued cooperation with Russia under the PUAE, and three of the four cooperative agreements under the PUAE were signed in Vienna on September 16 by Secretary O'Leary and Russian Minister of Atomic Energy Viktor Mikhailov. These agreements are on: magnetic confinement fusion; environmental restoration and waste management; and nuclear reactor safety. We are working with Embassy Moscow in efforts to get the fourth Memorandum of Cooperation (MOC) on fundamental properties of matter signed.

The interagency strategy for renewal of the PUAE has been developed. The PUAE umbrella agreement has been extended as well as three of the four MOCs. DOE is now working to extend the fourth cooperative agreements under the PUAE.

Restructuring the Fusion Energy Research Program

Preserve the fusion energy science base and maintain fusion as a U.S. energy option for the future.

Goals:

Success will be measured in FY 1996 by incorporating the Fusion Energy Advisory Committee (FEAC) recommendations and finalizing the strategy by February 1996 to restructure the fusion energy research program to emphasize fusion energy science.

FY 1996 Results:

DOE has prepared a strategic plan for the restructured Fusion Energy Sciences Program which incorporates the FEAC recommendation that the fusion program be a science-based research program focusing on innovative solutions for and alternative approaches to fusion energy. The plan is in the final stage of concurrence.

Advancing the State-of-the-Art in High Performance Computing

Advance the state-of-the-art in high performance computing and apply these capabilities to DOE and national priorities, such as national security, environmental cleanup, world leadership in science and technology, and economic productivity.

Goals:

Completing a road map for development and deployment of advanced communications and computing technologies to create "National Collaboratives," as envisioned in the DOE 2000 initiative to improve research productivity.

FY 1996 Results:

Based on the feedback from workshops, as well as other outreach activities, a small working group is refining the road map, with the effort completed in FY 1996 and initial projects beginning in FY 1997. A grant is in place to develop a system of remote acquisition, central analysis, and distribution of energy information to a level of detail not previously available. Two additional grants have been initiated to improve electric utility service to customers. The road map for DOE 2000 initiative and a detailed execution plan for the first year are completed. Competition for the second phase of "Grand Challenges" program was undertaken to apply lessons learned in first phase and address significant new science problems related to the Department's missions. Competition awards were granted in early FY 1997.

Developing computational software, in collaboration with Electric Power Research Institute and others, for the President's National Information Infrastructure initiative, to improve energy supply and demand management for utility companies.

An effort was established at Lawrence Berkeley National Laboratory to develop a prototype system that permits remote monitoring and control of multiple commercial buildings from a single control center. Two grants have also been initiated with utilities during FY 1996 to address fundamental electric utility issues that will improve customer interaction.

Expanding Access to Global Science Through the Information Infrastructure

Facilitate open access to the Department's programmatic, scientific, and technical information by providing better communications with U.S. industry, academia, the scientific community, and the public. Capitalize on interagency and international collaborations to benefit the United States.

Goals:

Creating the following four new mechanisms for public access to global energy-related information, resulting in a 20 percent increase in service to customers, measured by surveys and programmed feedback for each product through:

- *listing of DOE scientific and technical information resources in a centralized government directory,*
- *the Openness Initiative Information, to be available through open systems networks by March 1996,*
- *electronic delivery of formerly printed products by June 1996, and*
- *30 percent increase in full text electronic access to R&D information by September 1996.*

FY 1996 Results:

By capitalizing on international and interagency collaborations and implementing Web-based and other electronic dissemination options for providing access and delivery, the Department supported U.S. interests by increasing service to its customers during FY 1996 by 90 percent, averaging an additional 27,000 accesses per month over the FY 1995 baseline.

Diversifying America's Science Workforce

Work with minority educational institutions to diversify and develop an effective scientific and technical workforce.

Goals:

Increasing awards to Historically Black Colleges and Universities, Hispanic-serving institutions, Native American, and other minority institutions from over $58 million in FY 1995 to over $100 million.

FY 1996 Results:

In FY 1996, the Department supported minority educational insitutions through grants and cooperative agreements in the amount of $50 million.

Showcasing research accomplishments and forging at least three cooperative research and development agreements and partnerships with minority educational institutions.

Partnerships with minority educational institutions were continued and new ones established, including:

- *An undergraduate cooperative education program in engineering was established at Howard University to advance the number of students pursuing degrees and careers in engineering.*
- *The Chair of Excellence Professorship in Nuclear Physics and Engineering at Morgan State University is to facilitate innovative research in nuclear physics and increase the number of minority nuclear physicist professionals.*
- *The Hemispheric Center for Environmental Technology was established at Florida International University to research, develop, and demonstrate innovative environmental technologies.*
- *The Southwest Center for Environmental Excellence and Opportunity was established at the Albuquerque Technical Vocational Institute to enable communities to participate in Departmental clean-up and waste management activities.*
- *The Puerto Rico Renewable Energy and Efficiency Center was established at the University of Puerto Rico-Mayaguez to conduct applied research and development to adapt and validate renewable energy and energy efficiency technologies.*

Educating Young Scientists

Use the science and technology at the national laboratories to increase knowledge, analytical thinking, and research capabilities of faculty and students through hands-on experience.

Goals:

Success will be measured by the participation of 5,000 undergraduate, graduate, postdoctoral students, and faculty in DOE science education programs at our national laboratories in FY 1996 that results in 40 percent of the participants showing an increase in knowledge and skills as measured by surveys developed in collaboration with other Federal agencies.

FY 1996 Results:

During FY 1996, DOE was able to accommodate over 5,000 students and faculty at its laboratories. Progress on the evaluation of the program's effectiveness has been slowed but is currently underway in conjunction with the National Science Foundation. DOE will be unable to accomplish measurement of the increase in knowledge because of funding-induced delays.

NATIONAL SECURITY ACTIVITIES - effectively support and maintain a safe, secure, and reliable enduring stockpile without underground nuclear testing; safely dismantle and dispose of excess weapons; and provide technical leadership for national and global nonproliferation activities.

		(in millions)
Weapons Activities		
Stockpile Stewardship	$1,366	
Stockpile Management	1,573	
Weapons Program Direction	122	
Subtotal		$3,061
Nonproliferation and National Security		
Verification and Control Technology	349	
Nuclear Safeguards and Security	93	
Security Investigations	37	
Emergency Management	21	
Fissile Materials Disposition	62	
Worker and Community Transition	84	
International Nuclear Safety and Security	1	
Naval Reactors	669	
Subtotal		1,316
TOTAL		**$4,377**

Weapons Activities

Stockpile Stewardship - research, development, and engineering support necessary to maintain a safe and reliable U.S. nuclear weapons stockpile which requires sustaining core competencies, nuclear weapons laboratories, and the Nevada Test Site.

Stockpile Management - physical maintenance of the U.S. nuclear weapons stockpile, including: continual surveillance and retirement and disposal of weapons; pursuing a dual-track new tritium source; maintaining a worldwide nuclear/radiological accident response capability; and providing safeguards/security oversight for special nuclear materials.

Weapons Program Direction - management and administration of weapons activities, including personnel, site, and contractual costs.

Nonproliferation and National Security

Verification and Control Technology - conduct Comprehensive Test Ban research and development, including arms control treaty verification, intelligence collecting, and processing; support Presidential arms control and nonproliferation initiatives; and provide intelligence support in assessing nuclear threats.

Nuclear Safeguards and Security - provide direction and training for protection of nuclear weapons, nuclear materials, classified information, and facilities, including related technology development and directing classification and declassification activities.

Security Investigations - support of background investigations for both Federal and contractor personnel at DOE facilities.

Emergency Management - control and direction to ensure comprehensive and integrated planning, preparedness, and response capability for emergencies involving DOE operations or facilities.

Fissile Materials Disposition - provide safe, secure, environmentally sound, and inspectable long-term storage of weapons-usable fissile materials; disposal of surplus highly enriched uranium and plutonium; and technical support for U.S. initiatives to reduce foreign surplus of weapons-usable plutonium.

Worker and Community Transition - mitigate adverse impact on workers and communities resulting from restructuring, including local economic assistance for job-base conversion.

International Nuclear Safety and Security - reduction of national security and environmental threats related to unsafe and aging nuclear facilities worldwide; assist in Soviet designed nuclear power plant safety upgrades; and promote international cooperative nuclear safety research and development.

Naval Reactors - design, development, testing, and production of safe, long-lived, militarily-effective nuclear power plants for U.S. Navy ships and submarines, including over 120 operating reactors in nine different operational classes.

Performance Measures

Replacing Underground Testing with Science

Redirect the DOE weapons programs to maintain confidence in the enduring stockpile through the science-based Stockpile Stewardship Program.

Goals:	*FY 1996 Results:*
Developing the Accelerated Strategic Computing Initiative (ASCI) Implementation Plan by April 1996 to improve simulation capabilities.	*The ASCI Implementation Plan was approved in August 1996. Delay will not impact the overall schedule for completing ASCI.*
Demonstrating the Los Alamos Neutron Scattering Center's (LANSCE) concept of fast neutron radiography of weapons systems to detect small scale (2-3 mm) defects by September 1996.	*The LANSCE demonstration was completed on schedule in September 1996.*
Developing a new annual certification process with the National Security Council.	*The new annual certification process was completed. The first annual report is expected to be submitted in November 1996.*
Completing an integrated program plan for stockpile stewardship and management by March 1996.	*An integrated program plan for stockpile stweardship and management was submitted to Congress in April 1996.*
Conducting enhanced nonnuclear experiments on existing stockpile weapons and improving predictive techniques to repair or replace aging weapons.	*The enhanced nonnuclear experiments were completed.*

Maintaining Reliability of the Future Stockpile

Develop a replacement source for tritium to ensure the U.S. nuclear weapons stockpile remains reliable.

Goals:	*FY 1996 Results:*
Publishing the final Programmatic Environmental Impact	*The final Programmatic EIS was published in November*

Statement (EIS) in November 1995 and the Record of Decision (ROD) in December 1995 in support of a new tritium production source.	*1995, and the ROD was completed in December 1995 as planned.*
Selecting a prime contractor for the accelerator design by September 1996.	*The contract for the accelerator design was awarded in September 1996.*
Issuing a request for proposal for supplying tritium through commercial reactors or irradiation services.	*Release of the request for proposal has been rescheduled to FY 1997 to provide additional time to understand and resolve issues associated with government-owned commercial reactors. Rescheduling will not impact the overall ability of the commercial light water reactor path to deliver tritium as required in FY 2005.*

Determining the Future Size and Scope of the Nuclear Weapons Complex

Decide on the appropriate size and scope of the nuclear weapons complex.

Goals:	*FY 1996 Results:*
Issuing the draft Programmatic EIS for stockpile stewardship and management in February 1996.	*The draft Programmatic EIS for stockpile stewardship and management was issued on schedule in February 1996.*
Issuing the final Programmatic EIS for stockpile stewardship and management in June 1996.	*The final Programmatic EIS for stockpile stewardship and management was issued in November 1996. The delay reflects the need to accomplish litigation risk assessment associated with document.*
Issuing the ROD on stockpile stewardship and management in August 1996.	*The ROD on stockpile stewardship and management was signed in December 1996.*

Designing and Choosing a Potential Site for the National Ignition Facility (NIF)

Design and select a site for an above-ground experimental physics facility to simulate on a small scale the conditions during a nuclear weapons detonation in order to maintain confidence in the enduring nuclear weapons stockpile. Decide whether to request funding to proceed with the construction of the facility.

Goals:	*FY 1996 Results:*
Completing the nonproliferation assessment by December 1995.	*The Nonproliferation Assessment was completed on schedule in December 1995.*
Finishing the preliminary design by September 1996.	*The Title I Design for the NIF building is making expected progress. A three month delay in FY 1996 funding caused a one month delay in completion of design for laser equipment. We will continue to maintain the schedule to support the start of site production activities in March 1997.*
Deciding on the specific site for construction of the NIF as part of the ROD for stockpile stewardship and management.	*The ROD for Stockpile Stewardship and Management, including a decision on a specific site for construction of NIF at Lawrence Livermore National Laboratory, was signed in December 1996.*

Assisting Russia and NIS in Improving the Security of Nuclear Materials

Work with Russia and the Newly Independent States (NIS) to improve material protection, control, and accounting (MPC&A) activities at nuclear facilities that contain weapons-usable nuclear material. Develop with their scientists MPC&A equipment suitable for mass production and use in their nuclear complexes. Work with national authorities in instituting and standardizing MPC&A activities (civilian and military).

Goals:	*FY 1996 Results:*
Expanding MPC&A upgrades at the 26 facilities currently underway, adding additional facilities to be upgraded, and including Russian-manufactured personnel security equipment in these upgrades.	*MPC&A cooperation is now underway at over 40 locations in Russia, the NIS, and the Baltics. At most of these sites, work has progressed from the initial site survey done by DOE MPC&A teams to signing umbrella agreements for individual work contracts to purchase, deliver, and install MPC&A equipment. An expansion of current operations to include all weapons-usable nuclear material within each location is planned.*
Initiating MPC&A training for Russian national regulatory authorities from each region and beginning procurement of equipment for the Russian nuclear regulatory authority inspections by May 1996.	*GAN and Minatom will use the Russian Methodological Training Center (RMTC) at Obinsk to train operators, instructors, and inspectors. Procurement of equipment for laboratory training was completed in March 1996. The laboratory became operational in May 1996. DOE will continue to assist in defining requirements for MPC&A equipment and procuring and providing training in the use of the equipment for GAN inspectors.*
Developing the foundation for the preliminary design for a national Russian nuclear materials accounting system by July 1996.	*The first joint meeting to design a national Russian nuclear materials accounting system was held in Washington in February 1996. Two-week workshops were held at Oak Ridge National Lab in April 1996 to review the U.S. national MPC&A system. As a result of this workshop, the joint project team has begun the process of defining requirements for the Russian national nuclear materials accounting system. The work plan calls for a preliminary requirements analysis to be completed by the end of October 1996.*

Limiting Weapons-Usable Fissile Materials Worldwide

Promote alternatives to the civilian use of plutonium (Pu). Eliminate the civilian use of highly enriched uranium (HEU). Reduce stockpiles of HEU and Pu. Initiate regional fissile material control activities. Assist the shutdown of Russian Pu production reactors. Negotiate an international convention to end the production of fissile material for weapons purposes.

Goals:	*FY 1996 Results:*
Recommending a preferred alternative regarding the acceptance of spent fuel from foreign research reactors by October 1995, issuing the EIS in November 1995, and issuing the ROD in January 1996.	*DOE issued a ROD regarding the acceptance of spent research reactor fuel on May 13, 1996. The first spent fuel shipments were received in September 1996.*
Working with the German government to redesign the planned FRM-II research reactor to use low enriched uranium (LEU).	*DOE issued a report in January 1996 detailing its offer to assist in the redesign of the FRM-II research reactor in Germany. While not accepted by German officials, DOE demonstrated that use of LEU in the FRM-II was feasible.*

Supporting the June 1994 Gore-Chernomydrin Commission agreement to shut down the Russian Pu production reactors in Tomsk-7 and Krasnoyarsk-26 by the year 2000. Complete technical analyses on nuclear replacement power options by December 1995 and an analysis of fossil fuel replacement power options by July 1996.	*The technical analysis on nuclear replacement power options and a core conversion feasibility study were completed by December 1995. The analysis of fossil fuel replacement power options for Zheleznogorsk was completed in September 1996, and the analyses for Tomsk and Seversk are expected to be completed by December 1996.*

Strengthening the Nuclear Nonproliferation Regime

Promote adherence to the Nuclear Non-Proliferation Treaty. Increase the effectiveness and efficiency of the International Atomic Energy Agency (IAEA). Conclude successful negotiation of a Comprehensive Nuclear Test Ban Treaty. Facilitate IAEA inspections of excess fissile materials. Promote regional nonproliferation measures.

Goals:	*FY 1996 Results:*
Providing direct technical assistance for IAEA inspections in North Korea and Iraq.	*U.S./DOE experts have participated as team members in several IAEA inspections in Iraq, have served at the Baghdad Monitoring Center, and are on detail to UNSCOM and IAEA Action Team. Customized emergency diesel generators to provide emergency back-up power for IAEA monitoring equipment were delivered to Nyongbyon, North Korea in April 1996.*
Implementing 11 agreements for safeguards cooperation between DOE and foreign governments or organizations (Argentina, Australia, Brazil, EURATOM, France, Germany, Japan, South Korea, United Kingdom, IAEA, and ABACC).	*Safeguards cooperation between EURATOM and DOE is on track. The safeguards agreement with Brazil was completed. The feasibility safeguards system for South Korean DUPIC process was confirmed. DOE is developing and testing remote monitoring systems which could increase IAEA safeguards confidence and reduce inspection costs with 14 international partners.*
Beginning IAEA inspections of excess plutonium at Rocky Flats by December 1995, bringing the amount of excess fissile material under IAEA safeguards to approximately 12 metric tons.	*The IAEA Rocky Flats inspection took place in December 1995. Monthly inspections are occurring. IAEA inspections at Oak Ridge and Hanford are continuing, in addition to the inspection at Rocky Flats.*
Placing 13 metric tons of U.S. highly enriched uranium (HEU) hexafluoride (part of the 200 metric tons of U.S. weapons-grade material declared excess by the President) under IAEA safeguards by the second quarter of FY 1996.	*The 13 metric tons of excess HEU that is being blended down at the Portsmouth Gaseous Diffusion Plant was made eligible for IAEA safeguards in April 1996 and is now expected to be placed under IAEA safeguards by September 1997.*
Blending at least four metric tons of weapons-grade uranium down to commercial levels by September 1996.	*As of September 30, 1996, less than one metric ton of uranium had been re-fed due to United States Enrichment Corporation controls placed on the rate of HEU refeeding to improve operations.*

Controlling Nuclear Exports

Assist the international community in effectively controlling exports and establishing responsible supplier policies. Implement U.S. statutory licensing requirements for nuclear export controls. Encourage adherence to the Nuclear Suppliers Guidelines. Strengthen multilateral supplier initiatives. Foster transparency through automated information sharing and analysis. Advance nonproliferation objectives through technology security.

Goals:	*FY 1996 Results:*
Adopting the Nuclear Suppliers Group (NSG) Information Sharing System at the April 1996 Nuclear Suppliers Group Plenary Meeting in Buenos Aires.	*NSG agreed that the implementation of a DOE developed information sharing system should continue to be encouraged. The NSG has requested an implementation plan by October 1996.*
Enlisting new signatories to the Nuclear Suppliers Guidelines: China, Brazil, Ukraine, and Turkey by April 1996.	*In April 1996, Ukraine and Brazil were admitted to the NSG. Contacts with the Chinese were unfruitful.*
Completing technical reviews of three non-sensitive fuel cycle technologies which trigger multilateral nuclear export controls and seeking formal adoption of a revised list at the May 1996 meeting of the Nonproliferation Treaty Exporters Committee (NTEC).	*The U.S. presented its final review of the Trigger List technologies concerning nuclear reactors, non-nuclear materials, and fuel fabrication to the NTEC for adoption. Final adoption took place in October 1996.*
During FY 1996, expanding to four additional countries training in strategic material identification and illicit trafficking prevention in order to improve export control systems in Russia, the other Newly Independent States, and Eastern Europe.	*In March 1996, in conjunction with U.S. Customs Service, Czech and Slovak Republics border enforcement personnel were trained in nonproliferation. Conducted assessments in Poland and Hungary with U.S. Customs of country laws and enforcement training to interdict smuggling of strategic, sensitive nuclear and nuclear dual-use commodities.*

Enhancing the Safety of Soviet-Designed Reactors

Increase the safety of Soviet-era nuclear power plants in countries of Central and Eastern Europe and the Newly Independent States.

Goals:	*FY 1996 Results:*
Success will be measured in FY 1996 by the Department continuing to increase the operational safety of Soviet-designed nuclear power plants and enhancing the safety cultures in the countries that operate them by: - *Completing draft emergency procedures for all four types of Soviet-era nuclear plants,*	*Ninety percent of the emergency procedures have been drafted. Some of the remaining drafts are contingent upon completing additional analytical calculations. Technology transfer, which is the essential element of the project, has been completed. Western-style procedures, which will improve the capability of plant operators to prevent or minimize accidents, have been successfully implemented at the Novovoronezh nuclear plant in Russia.*
- *Improving training of power plant operators by providing training simulators for five nuclear power plants and training 150 plant staff through seven operator exchange visits by the end of FY 1996,*	*Six contracts for simulators were completed, and one simulator was provided to the Russian manufacturer for subsequent delivery to the Khmelnytskyy nuclear plant in Ukraine. 150 plant operators were trained through operator exchange visits. In addition, eleven operator and maintenance pilot training programs and six special training courses have been developed and implemented. As of October 1996, 800 staff members from Soviet-designed nuclear plants had been trained.*
- *Assisting the nuclear regulator in Ukraine by completing the training on licensing dry casks for spent fuel storage by June 1996 and in Russia by providing key U.S. DOE safety documentation for large research reactors and fuel cycle facilities and by completing several technical workshops by October 1996, and*	*Training of the Ukrainian nuclear regulator on licensing of dry casks for spent fuel storage was completed. The safety documentation was provided, and six technical workshops were held.*

- *Improving performance of safety systems at four nuclear power plants by installing fire detection systems and removing fire hazards by installing DC power supplies and by providing an emergency water supply system by September 1996.*	*The Department has provided emergency power and water supplies, fire detection and fire-fighting equipment, isolation valves, and other safety equipment at five of the oldest, least-safe, nuclear power plants.*

Assisting in the Shutdown of the Chornobyl Nuclear Power Plant

Facilitate the closure of the Chornobyl nuclear power plant in Ukraine and reduce safety risks during the plant's remaining operating period.

Goals:	*FY 1996 Results:*
Providing improved fire safety and other safety equipment, completing a joint U.S./Ukrainian risk assessment of operating Chornobyl Unit 3, and preparing a preliminary decommissioning plan for Units 1 through 3.	*Fire safety and other safety equipment was provided by September 1996. A draft assessment of risks to Unit 3 due to a potential collapse of Unit 4 was completed in September 1996. A preliminary decommissioning plan for Units 1, 2, and 3 is being prepared.*
Establishing the International Nuclear Safety and Environmental Research Center at Slavutich, Ukraine, near Chornobyl by April 1996 to coordinate nuclear safety research.	*In April 1996, the newly-named International Chornobyl Center on Nuclear Safety, Radioactive Waste, and Radioecology was established. Since the Center's inception, the U.S. and Ukraine have implemented a number of projects associated with reactor safety, hazards management, spent fuel and low-level radioactive waste management, and data collection and analysis for safety assessments.*
Transferring dry cask spent fuel storage technology, including three casks and a transporter, to Ukraine and evaluating Ukraine's spent fuel management and disposal requirements and options by September 1996.	*All hardware, except for cask liners, has been shipped to the Zaporizhzhya nuclear plant in Ukraine. A detailed work plan for developing Ukrainian spent fuel management and disposal requirements was completed.*

Managing Workforce Restructuring

Assure fair treatment of workers and communities affected by changing DOE missions through a cost-effective workforce restructuring process that allows an average cost per separation of $25,000. The workforce restructuring since 1994 will result in a total savings of $3 billion per year.

Goals:	*FY 1996 Results:*
Limiting the involuntary separation of prime contractor employees due to workforce restructuring to 20-33 percent by sponsoring voluntary separation, transfers, and retraining.	*Involuntary separations still comprise slightly over 25 percent of all separations. Given increasing budgetary pressures, changing missions, and other DOE contractor activities, it is uncertain whether the 33 percent performance measure is viable after FY 1996.*
Ensuring reemployment of at least 60 percent of separated workers seeking new jobs by sponsoring community-based businesses, career assistance programs, further education, and retraining programs.	*Results of DOE's Displaced Worker Survey indicate that 64 percent of those seeking employment made use of career assistance through outplacement centers, and 60 percent had obtained either full or part-time employment.*
Ensuring that at least 66 percent of the affected workers are satisfied with DOE's workforce restructuring process.	*In DOE's Displaced Workers Survey for FY 1995, over 62 percent were either satisfied or very satisfied with their treatment.*
Establishing a workforce planning system with a database on workers' abilities by September 1996.	*Work is continuing on the Work Force Information System (WFIS) which will contain a database on workers' abilities. The WFIS should be fully operational by mid-FY 1997.*

Establishing a Departmental policy for the treatment of contractor employees affected by organizational changes such as contract reform, privatization, and outsourcing.	*The Office of Worker and Community Transition's role on establishing a Departmental policy has been superseded by the Department-wide Privatization Working Group (PWG). The Office is represented on the PWG and provides input on workforce activities.*

ENVIRONMENTAL QUALITY ACTIVITIES - understand and reduce environmental, safety, and health risks and threats and develop the technologies and institutions required for solving domestic and global environmental problems.

		(in millions)
Environmental Management		
Environmental Restoration	$1,451	
Waste Management	2,353	
Nuclear Materials and Facilities Stabilization	1,443	
Science and Technology Development	366	
Landlord Functions	96	
Program Planning and Management	101	
Uranium Enrichment Decontamination and Decommissioning	279	
Subtotal		$6,089
Environment, Safety, and Health (ES&H)		
ES&H Activities - Non-Defense	81	
ES&H Program Direction - Non-Defense	46	
ES&H Activities - Defense	56	
ES&H Program Direction - Defense	12	
Subtotal		195
Civilian Radioactive Waste Management		345
Net Change in Funded Environmental Liability		(414)
TOTAL		**$ 6,215**

Environmental Management

Environmental Restoration - in accordance with Federal and State laws and other legal agreements, protects human health and the environment from risks posed by inactive, surplus DOE facilities and contaminated areas; remediation activities, including both cleaning-up or containment of contamination including soil, ground water, and surface water; and the decommissioning of contaminated facilities including reactors and chemical processing buildings.

Waste Management - encompasses safe treatment, storage, and disposal of waste from operations. The different categories of waste by this program include high-level, transuranic, mixed transuranic, low-level, mixed low-level, uranium mill tailings, hazardous, sanitary, and special case waste.

Nuclear Materials and Facilities Stabilization - consists of: stabilizing, consolidating, and storing special nuclear materials, including plutonium and highly enriched uranium prior to final disposition; deactivating surplus facilities to a safe and low maintenance condition while awaiting final decommissioning; and managing spent nuclear fuel, including treatment and storage. Integral to these functions is continuous surveillance and maintenance, which is required for safety and security.

Science and Technical Development - research and development of new more effective and less expensive technological remedies to the environmental and safety problems of the Environmental Management Program. The new technologies are necessary to reduce risks to humans and the environment, reduce cleanup cost, and resolve significant related problems for which no solutions currently exist.

Landlord Functions - crosscutting, site-wide infrastructure support, such as electrical systems, laboratory support, road maintenance and upgrades, fire protection, quality assurance, safety and environmental monitoring, sanitary sewer systems, laundry services (for contaminated clothing and materials), utilities, and site security at installations where environmental management activities are performed.

Program Planning and Management - national planning, management, and oversight of the Environmental Management Program performed at Headquarters. The functions include establishing policy, program reviews, budget preparation, Federal and Congressional liaison, safety oversight, performance tracking, and coordinating national stakeholder interactions.

Uranium Enrichment Decontamination & Decommissioning (D&D) - consists of remedial action and other related environmental clean-up activities at sites leased and operated by the United States Enrichment Corporation, including DOE facilities at these sites, and, additionally, provides for partial reimbursement of remediation costs attributable to other uranium and thorium purchased by the Federal government.

Environment, Safety, and Health (ES&H)

ES&H Activities - Non-Defense - provides Departmentwide technical support in areas of nuclear safety, occupational health and safety, environmental compliance, and health studies, including the National Environmental Policy Act (NEPA), Radiation Effects Research Foundation (RERF), safety assistance, and environmental compliance implementation assistance.

ES&H Program Direction - Non-Defense - management and administration of non-defense activities, including associated personnel, travel, and support costs.

ES&H Activities - Defense - provides independent oversight and technical assistance for environment, safety, health, safeguards, and security at the Department's defense related facilities, including related oversight and health studies.

ES&H Program Direction - Defense - management and administration of defense related activities, including associated personnel, travel, and support costs.

Civilian Radioactive Waste Management (CRWM) - development and management of a permanent Federal disposal facility for spent nuclear fuel from civilian reactors and high-level radioactive waste from atomic energy defense activities in a manner that assures public and worker safety and protects the environment.

Net Change in Funded Environmental Liability - annual adjustment made to account for the net change between beginning and ending balances in DOE's funded environmental liabilities. During

FY 1996, the funded environmental liability decreased by $414 million, representing expenditures made by DOE in excess of the FY 1996 appropriation for environmental quality activities.

Performance Measures

Making Progress on Mixed Waste Treatment

Continue working with state and Environmental Protection Agecy regulators to reach agreements and implement plans to treat sites with low level mixed waste.

Goals:	*FY 1996 Results:*
Reaching agreements at seven remaining sites by December 1995.	*DOE has completed its activities related to the remaining seven agreements. Four agreements have been signed. The Department submitted all Site Treatment Plans to the regulators. The regulators bear responsibility and control the schedule for finalizing Plans and orders for the remaining three sites.*
Meeting the 130 milestones for FY 1996 for waste characterization and treatment activities, including: - *awarding a contract for privatized treatment of certain waste streams at the Oak Ridge Reservation and the Hanford site,*	*Low-level mixed waste sludge has been successfully treated during a technology and process qualification Phase I at Oak Ridge. A contract to demonstrate the reliability, safety, and cost-effectiveness of the Quantum-CEP™ technology for processing DOE's mixed waste was awarded in the fourth quarter of FY 1996. The broad spectrum contract will be awarded in the fourth quarter of FY 1997. Hanford awarded the mixed waste contract in November 1995. Treatment of 30,000 drums begins in the year 2000. The contractor is pursuing the Resource Conservation and Recovery Act permit.*
- *requesting proposals for an advanced mixed waste treatment facility at the Idaho National Engineering Laboratory,*	*A feasibility assessment for the Advanced Mixed Waste Treatment Privatization project at Idaho was completed in 1995. A Request for Proposals was released in January 1996. A contract was awarded in December 1996.*
- *starting operations of the Consolidated Incineration Facility (CIF) at the Savannah River Site, and*	*Preliminary startup testing and a pre-trial burn at the CIF at the Savannah River Site was conducted in late 1995. A number of problems were identified during that process which required the schedule for startup of the CIF to be modified. Physical modifications necessary to operate CIF were completed in December 1996, and the facility is currently in the startup testing phase.*
- *treating more than 180,000 cubic meters of mixed waste.*	*Through FY 1996, the Department tracked to a baseline inventory of 85,423 cubic meters of low-level mixed waste (LLMW). Through September 30, 1996, LLMW additions to inventory were 17,214 cubic meters, reductions were 33,763 cubic meters, and disposed was 8,690 cubic meters. The current inventory is 59,710 cubic meters of LLMW, a 30 percent reduction in inventory.*

Shutting Down and Cleaning Up Surplus Non-Weapons Nuclear Reactor Sites

Safely deactivate surplus nuclear facilities, including the Fast Flux Test Facility (FFTF) reactor in Washington and the Experimental Breeder Reactor-II (EBR-II) in Idaho, and prepare wastes for interim storage and ultimate disposition.

Goals:	*FY 1996 Results:*
Completing critical steps to deactivate the FFTF by: - *washing and packaging 56 of 382 FFTF spent fuel assemblies into interim storage casks and placing the casks in secure storage by September 1996, and*	*Washed and packaged 63 of 382 FFTF spent fuel assemblies into interim storage casks and placed the casks in secure storage.*
- *removing fresh fuel and eliminating unneeded security at the FFTF by September 1996, thus saving $500,000 annually.*	*Because of the Department's on-going consideration of the FFTF as a potential tritium supply source, the fresh fuel was not removed from the facility, and the associated safeguards and security were not eliminated as scheduled in the shutdown program.*
Completing critical steps to deactivate the EBR-II by: - *completing 86 percent of the EBR-II fuel removal by September 1996. All fuel will be removed from the reactor by December 1996, and*	*89 percent of EBR-II fuel was removed by the end of September 1996.*
- *completing modification of the Sodium Processing Facility by September 1996 to stabilize coolant drained from the EBR-II.*	*The Sodium Processing Facility at Argonne National Laboratory -West was completed in November 1996.*

Ensuring Environmental Justice

Implement the Department's plan to reduce disproportionate negative impacts of our operations and facilities on low-income and minority communities by accelerating waste management, pollution prevention, and environmental remediation activities.

Goals:	*FY 1996 Results:*
Increasing the removal of organic solvents from soil and groundwater within the "A/M" area of the Savannah River Site by 74 percent by September 1996.	*By deploying three new technologies (mechanical soil vapor extraction, barometric pumping and pure phase extraction), a 75 percent increase in the removal of organic solvents was achieved, and over 90,000 pounds of organic solvents were removed from soil and groundwater within the "A/M" area of the Savannah River Site.*
Initiating construction of an interim cap to prevent the migration of contaminants from the Old Burial Ground at the Savannah River Site by September 1996.	*Construction of an interim cap over the Old Burial Ground to prevent migration of contaminants was initiated early due to expeditious regulatory review and approval of the proposed action at the Savannah River Site.*
Initiating clean up activities near the East Fork Poplar Creek community at the Oak Ridge Site by April 1996.	*Phase I of the cleanup near the East Fork Poplar Creek community at the Oak Ridge Site is in process, and Phase II, which involves the cleanup of 25,000 cubic yards of soil, will be initiated in May 1997 with completion scheduled for September 1997.*
Implementing an environmental justice communications strategy plan for affected communities.	*A prototype framework is being developed to enhance intra-Departmental communications for environmental justice. It includes health-related aspects of subsistence-related risk communications with communities engaged in*

	subsistence consumption through a tri-annual Subsistence and Environmental Health Newsletter for which the Spring and Summer editions have been disseminated, and the Fall edition was distributed in October 1996.

Preventing Future Pollution

Implement pollution prevention programs that pay for themselves through productivity gains and the avoidance of future waste management costs.

Goals:	*FY 1996 Results:*
Issuing pollution prevention performance measures and waste reduction goals by March 1996 to be achieved by the year 2000.	*In May 1996, the Secretary issued her Departmental pollution prevention goals and 1996 Pollution Prevention Program Plan. The latter document contains performance measures.*
Ensuring that half of DOE's purchases of Environmental Protection Agency designated products contain recycled or recovered materials.	*DOE has issued a series of informational and guidance memoranda to the field. DOE has stressed that 50 percent of DOE purchases include recycled or recovered material. The roll-up of field performance data will allow for the ultimate assessment as to whether this goal has been achieved. Data will be available by January 15, 1997.*
Initiating 20 additional projects in FY 1996 that will yield net savings of at least $30 million over a three year period.	*Twenty projects were initiated in March 1996 at a total cost of $6 million. The total annual savings projected from the implementation of these projects is $19.5 million.*
Completing analysis and issuing a report by March 1996 concerning the contamination resulting from each step of nuclear weapons production to prevent future generation of waste.	*A report entitled "Linking Legacies", which concerns the contamination resulting from each step of nuclear weapons production to prevent future generation of waste, was released at the January 15, 1997, Openness Initiative Press Conference. The deadline of March 1996 was not met because of severe staff cutbacks and competing projects.*

Reducing Serious Vulnerabilities

Complete Highly Enriched Uranium (HEU) Vulnerability Study to identify environment, safety, and health (ES&H) vulnerabilities.

Goals:	*FY 1996 Results:*
Success will be measured by reducing the number of unaddressed serious HEU vulnerabilities at DOE facilities to zero.	*Approximately 155 serious ES&H vulnerabilities were identified by the Highly Enriched Uranium Vulnerability Assessment, completed in FY 1996. Some were immediately fixed, and all are being addressed by corrective action plans.*

Institutionalize a Multi-Disciplinary Oversight Process

Institutionalize a multi-disciplinary, fully integrated oversight process for evaluating ES&H and safeguards and security programs.

Goals:	*FY 1996 Results:*
Completing value-added, comprehensive oversight evaluations, focusing on ES&H-management systems at seven DOE sites.	*Comprehensive, multi-disciplinary ES&H oversight evaluations have been completed for seven DOE sites during FY 1996.*

ENERGY RESOURCES ACTIVITIES - encourage energy efficiency; advance alternative and renewable energy technologies; increase energy choices for all consumers: assure adequate supplies of clean, conventional energy; and reduce U.S. vulnerability to external energy supply disruptions.

		(in millions)
Energy Efficiency and Renewable Energy		
Solar and Renewable Resource Programs	$296	
Energy Efficiency Programs	885	
Subtotal		$1,181
Fossil Energy		
Coal Research and Development (R&D)	165	
Petroleum R&D	68	
Gas R&D	124	
Fossil Energy R&D Supporting Activities	61	
Fossil Energy R&D Program Direction	12	
Clean Coal Technology	251	
Strategic Petroleum Reserve	159	
Subtotal		840
Nuclear Energy		
Nuclear Energy R&D	191	
Termination Costs	71	
Isotope Production and Distribution	27	
Uranium Supply and Enrichment Services	107	
Subtotal		396
Other		78
TOTAL		**$2,495**

Energy Efficiency and Renewable Energy

Solar and Renewable Resource Programs - research and development of efficient, reliable, and environmentally sound renewable energy technologies for buildings, industrial, transportation, and utility economic sectors, including related advanced energy systems utility grid integration.

Energy Efficiency Programs - research and development of energy efficiency technologies in buildings, industrial, transportation, and utility economic sectors and additionally providing technical and financial support through grants to State and local governments and others.

Fossil Energy

Coal Research and Development - research and development (R&D) of coal technologies to meet future national energy and environmental demands and to position the U.S. coal industry to respond to growing export market opportunities while maintaining our national energy security.

Petroleum R&D - research and development of increased domestic oil production technology, enhanced processing and utilization technologies, and reservoir life extension.

Gas R&D - research and development of natural gas exploration, production, processing, and storage technologies.

Fossil Energy R&D Supporting Activities - crosscutting program activities, including environment, safety and health, cooperative research, materials research, and related essential fuels programs.

Fossil Energy R&D Program Direction - program management and administration, including personnel and contract support costs.

Clean Coal Technology - joint Federal and private industry development of promising advances in coal-based technologies and demonstration of commercial marketplace potential.

Strategic Petroleum Reserve - operation and maintenance of the U.S.'s emergency stored oil supply at five sites in Texas and Louisiana.

Nuclear Energy

Nuclear Energy R&D - research and development of commercial nuclear power, including universities, space, and defense applications and international nuclear safety collaborations.

Termination Costs - complete, effective, and radiologically safe shutdown of formerly used Federal nuclear research facilities.

Isotope Production and Distribution - production and distribution of radioactive and stable isotope products and related services.

Uranium Supply and Enrichment Services - economically supplies safe, environmentally-sound nuclear products and services and addresses crucial domestic and international uranium processing issues.

Performance Measures

Designing and Delivering Cars of the Future

Lead the design team, of the multi-agency and industry Partnership for a New Generation Vehicle, with the goal of developing an 80 mile-per-gallon family car. Deliver the individual technologies in new car models as they are proven effective and demonstrate a prototype car of the future by 2004.

Goals:	*FY 1996 Results:*
Delivering fuel cell, battery, turbocharger, generator, and diesel prototype technologies for demonstration, testing, and pilot production.	*Each of the five technologies is at least in laboratory bench testing.*
Adding the final "engine" project partnership, and completing the planned R&D team and portfolio needed to design and build the prototype family car.	*The final engine partnership with Chrysler was added in March.*
Adding 15,000 alternative fuel vehicles to the existing 27,000 car fleet in 50 Clean Cities, including 15 new cities this year. The new vehicles will reduce annual oil imports by an additional 4 million gallons, increasing the program savings to 11 million gallons a year.	*This goal was exceeded when the fifty-first city was added in October.*

Boosting the Nation's Production of Natural Gas and Oil

Improve the capability of the nation's petroleum industry to produce additional supplies of secure, domestic natural gas and oil, increasing U.S. gas and oil production by an average of 1 million barrels per day (oil equivalent) during the 2001 - 2010 period.

Goals:	*FY 1996 Results:*
Demonstrating and/or transferring to industry, using national lab expertise, at least six new geophysical imaging technologies that will improve exploratory well success rates from a current average of 40 percent to 50 percent.	*Prototype devices for five geophysical imaging technologies have been completed and are undergoing field trials, and one technology has been commercialized. The exploratory well success rate has improved to 48 percent for the first four months of 1996, and continued improvements are expected as new geophysical technologies, including those developed by DOE, are adopted by industry. The total FY 1996 results will not be available until the end of March 1997.*
Demonstrating at least five new data processing and simulation methods for applying advanced computing technology developed by national laboratories for other government programs to improve domestic prospects for producing natural gas and oil.	*The five projects are expected to successfully complete interim products with FY 1995 carry-over funds. However, continued progress toward the commitment to increase U.S. oil and gas production by 1 million barrels starting in 2001 is at risk because of major budget cuts announced after publication of the Performance Agreement. Accomplishments to date include: computer code that provides a three-fold acceleration for parallel processing of subsalt seismic data; multiphase fluid simulator for underbalanced drilling; publications on prototype computer model to predict geopressured reservoirs; prototype data server available on the Internet; and synthetic seismic data sets for a subsalt structure and an overthrust structure available for industry use in calibrating processing systems.*

Reducing U.S. Vulnerability to Energy Supply Disruptions

Ensure by the year 2000 the readiness of the Strategic Petroleum Reserve (SPR) to draw down 563 million barrels (MMB) of crude oil at a sustainable rate of 4.2 MMB/day within 15 days of receiving direction from the President.

Goals:	*FY 1996 Results:*
Degasifying an additional 61 million barrels of inventory to increase drawdown capability from 3.2 to 3.4 MMB/day and inventory availability to 510 MMB.	*After commitment/measures were put in place, final decisions were made to move oil from Weeks Island and to finance this and deficit reduction by selling oil. This decision, coupled with a new requirement to degas 33 MMB of Weeks Island oil after moving it, reduced the planned inventory available for drawdown at the end of FY 1996 from 510 to 459 MMB, and the SPR total shown in the commitment from 585 to 574 MMB. Since these events were beyond program control, success is measured below against the 459 MMB level.* *An additional 68 MMB of inventory was degassified, thereby exceeding the projected 61 MMB and increasing drawdown capability from 3.2 to 3.4 MMB per day. Inventory available for drawdown was 466 MMB versus the revised success measure of 459 MMB.*

Initiating an additional 22 percent of the infrastructure life extension program, thereby completing nearly half of the program.	*An additional 20 percent of the infrastructure life extension program was initiated, bringing implementation to 46 percent towards extending SPR facility and systems capability with a high level of reliability and operating cost efficiency to the year 2025.*
Completing transfer or sale of 80 percent of 72 MMB of oil from the Weeks Island storage site to a more geologically stable site ensuring the availability of this oil.	*The removal of approximately 88 percent of 72 million barrels of oil from Weeks Island storage site was accomplished, thereby exceeding the 80 percent success measure and ensuring the availability of this oil for drawdown. Also included was the successful sale of 18 MMB to finance decommissioning and general budget deficit reduction.*

Developing the Clean, High Efficiency Power Plant of the 21st Century

Provide the nation's electric power industry from 2000 to 2010 with a new generation of natural gas and coal power technologies that progressively reduce CO_2 emissions by 30 to 50 percent, lower SO_2 and NOx emissions to as little as 1/10th of the levels mandated by current Federal standards, and produce electricity at costs 10 to 20 percent below today's conventional plants.

Goals:	*FY 1996 Results:*
Continuing accomplishments in the Clean Coal Technology Demonstration Program, including: - *starting up the nation's first two full commercial-scale coal gasification combined cycle facilities, both achieving 96 percent or greater SO_2 removal and NOx reductions of at least 90 percent, and* - *demonstrating the market readiness of two more advanced pollution control retrofit technologies that can remove up to 70 percent of NOx and SO_2 pollutants.*	*The Wabash River Coal Gasification Repowering Project plant construction is complete, and commercial operation began December 1, 1995. The Tampa Electric Integrated Gasification Combined Cycle Project completed construction and commenced start up in August 1996.* *The Milliken Clean Coal Technology Demonstration Project conducted sulfur performance testing during 1996, and data evaluation is in progress. Construction has been delayed on the Commercial Demonstration of the NOxSO SO_2 / NOx Removal Flue Gas Cleanup System due to a change in site/sponsor and the need to obtain new financing. This project is expected to achieve SO_2 reductions of 98 percent and NOx reductions of 70 percent.*
Demonstrating a low-cost combustion gas additive that increases SO_2 emissions removal from 92 percent to 98 percent in wet scrubbers and reduces cost from about $300 to $50 to $100 per additional ton of SO_2 removed.	*Full scale testing of additives has been completed at six power plants. 95-98 percent SO_2 removal was achieved at five of the sites. Performance at the sixth site was 93 percent (up from a baseline of 86 to 89 percent). The cost per additional ton of SO_2 oval ranged from $35 to $70.*
Beginning the test runs of the first two complete natural gas molten carbonate fuel cell plants - one for utility power generation, the other for onsite cogeneration - that will lead to a 60 percent efficient market-ready fuel cell system by the year 2000.	*The first complete molten carbonate fuel cell plant successfully began operation on April 25, 1996 in Santa Clara, CA with a second plant scheduled to begin operation by the end of CY 1996 in San Diego, CA.*
Moving two U.S. natural gas turbine technologies into the large-scale component development stage, leading by the year 2000 to a full-scale prototype of a 60 percent efficient, ultra-low, NOx advanced gas turbine system.	*Phase III (technology readiness testing) has been initiated with two manufacturers of utility-sized gas turbines (General Electric and Westinghouse). This program is accelerating the introduction of U.S. power generation technology that complies with increasingly stringent environmental standards.*

Certifying the Next Generation of Nuclear Power Plants

Establish standardized designs and complete the testing and other activities necessary to receive Nuclear Regulatory Commission (NRC) certification of the next generation of light water reactors that will be simpler, safer, and less expensive to build and operate than existing plants.

Goals:	*FY 1996 Results:*
Supporting design certification by NRC for the Advanced Boiling Water Reactor and for System 80+ by the end of FY 1996.	*NRC issued Final Design Approval for the reactor in July 1994 and the Notification of Rule making in March 1995. The NRC design certification process will extend into the 1997 calendar year but is expected to be completed successfully. The Department's role in providing design certification is essentially completed. DOE will continue to work with NRC and the industry to resolve remaining concerns until the certification is granted.*
By April 1996, completing testing and test analysis reports for the AP-600 nuclear plant design that are needed to support issuance by NRC of the Supplemental Draft Safety Evaluation Report.	*Testing and test analysis reports were completed on schedule.*

Implementing International Climate Change Initiatives

Monitor and mitigate greenhouse gas emissions and achieve U.S. goals under the United Nations Framework Convention on Climate Change's Climate Change Treaty.

Goals:	*FY 1996 Results:*
Conducting an interagency evaluation of the second round of the U.S. Initiative on Joint Implementation (USIJI) proposals and awarding the winning proposals by December 1995. These actions are estimated to reduce carbon emissions by more than 5 million metric tons in the developing countries by the year 2000.	*A second round of project selection in USIJI was completed, and seven new projects were selected. These actions are estimated to reduce carbon emissions by more than 5 million metric tons in the developing countries by the year 2000.*
Completing the first round of 56 climate change country studies, which will produce each country's greenhouse gas emission inventories, risks associated with climate change, and mitigation plans to reduce or capture greenhouse gas emissions.	*All 56 country studies projects are complete, and draft or final reports have been received from the participating countries. These reports are serving as the basis for the national communications of developing countries which are due to the Convention next year. This program has generated considerable good will and is cited by developing countries in almost every climate change fora. DOE participated in the first three meetings of the Ad Hoc Group on the Berlin Mandate, which is negotiating next steps under the Convention.*

Maximizing the Value of Federal Oil Fields

Maximize the value to the taxpayer of the Naval Petroleum and Oil Shale Reserves (NPOSR) by divesting them to the private sector, subject to Congressional authorization before the end of FY 1998.

Goals:	*FY 1996 Results:*
Offer the government-owned and operated commercial oil field at Elk Hills for sale to the private sector and conduct a study of other NPOSR assets.	*PL 104-106, which authorizes the sale of Elk Hills by February 10, 1998, outlines the process for the determination of a fair market value of Elk Hills, as well as the administration of the sale. Results to date include:* - *CS First Boston was contracted to serve as the investment banker to administer the sale. Petrie*

Parkman was brought in to serve as the expert on elements of the sale unique to the petroleum industry.
- *Ryder Scott Company was contracted to prepare a reserves report of the Elk Hills field, describing in detail the estimated volumes of oil, gas, and hydro carbon liquids available for recovery.*
- *Netherland, Swell, & Associates, Inc. was contracted to serve as the independent petroleum engineer in order to prepare a recommendation on final equity interest for each oil and gas zone at Elk Hills.*
- *Two additional contracts were awarded for legal and administrative support services.*
- *Gustavson Associates was awarded contract to conduct study of other NPOSR assets. The report was completed.*

Prior to the sale, operating the Reserves in FY 1996 so as to achieve net revenues in the range of $217 to $256 million to the Treasury.

FY 1996 operation of the Reserves achieved:
- *Production of 40 million barrels of oil and equivalent gas.*
- *Net revenues of $241 million.*

Improving Efficiency in Energy Intensive Industries

Work with the most energy-intensive industries to focus cooperative research, increase energy and resource efficiency, and improve U.S. competitiveness resulting in over $20 billion of industry energy cost savings by the year 2000.

Goals:

Signing partnership agreements with the metal castings industry in October, chemical industry in June, glass industry in September, and aluminum industry by September to achieve "Industrial Visions of the Future," which include economic, energy efficient, and environmentally superior technologies.

FY 1996 Results:

Metal castings and glass industry partnership agreements have been signed. The aluminum industry agreement was signed in October. The chemical industry agreement has been rescheduled for late winter.

Beginning four new technology road maps with industry representatives teaming and cost-sharing with DOE programs, researchers, and laboratories.

Four technology road maps have begun in the metal castings, glass, aluminum, and chemical industries.

Ensuring the Availability of Isotopes for Industry, Research, and Health Care

Ensure the timely, reliable, and cost-effective availability of isotopes for use in U.S. industry, research, and health care. Reduce dependence on foreign markets for molybdenum-99, which is used in 15 million diagnostic medical tests per year in the U.S.

Goals:

Issuing the Environmental Impact Statement (EIS) and reaching a Record of Decision (ROD) by March 1996 on establishing a domestic source of molybdenum-99 production.

FY 1996 Results:

DOE intentionally delayed issuance of the Final EIS for the molybdenum-99 initiative until April 1996. The ROD was issued in September 1996, and the Department revised the schedule for the overall project.

Demonstrating a domestic source capability for molybdenum-99 through production of at least 30 curies of molybdenum-99 by September 1996.

Sample quantities of molybdenum-99 were produced in October 1996, on time under the revised schedule.

Improving the on-time delivery rate for all deliveries from 91 to 95 percent by January 1996. (Measure revised for purpose of accuracy.)	*The Department's on-time delivery rate reached 95 percent by January 1996.*
Working with U.S. industry to identify, by the end of September 1996, at least five specific activities now conducted by the DOE Isotope Production and Distribution program that can be privatized within one year.	*The request for expressions of interest in privatization was published in December 1995, and responses were obtained by April 1996. Five activities for privatization were identified on schedule. In addition, hot cell operations for the production of isotopes at Idaho National Engineering Laboratory were commercialized on October 1, 1996. The privatization initiative is proceeding.*

MANAGEMENT AND OTHER ACTIVITIES - encompasses crosscutting areas of the Department, including management and administration, regulation, and energy information.

		(in millions)
Departmental Administration and Staff Offices		$370
Inspector General		28
Economic Regulation		
Hearings and Appeals	$4	
General Counsel Compliance Office	4	
Subtotal		8
Energy Information Administration		
National Energy Information Systems		79
Federal Energy Regulatory Commission		146
Other		6
TOTAL		**$637**

Departmental Administration

Departmental Administration and Staff Offices - salaries and expenses for staff organizations including: the Office of the Secretary; Policy; Chief Financial Officer; Human Resources and Administration; Field Management; Congressional, Public, and Intergovernmental Affairs; General Counsel; Economic Impact and Diversity; and Board of Contract Appeals.

Inspector General

Inspector General - in accordance with the Inspector General Act of 1978, conducts investigations, audits, and inspections to detect and prevent fraud, abuse, and violations of law, and to promote economy, efficiency, and effectiveness of DOE operations.

Economic Regulation

Hearings and Appeals - processes and resolves refund requests related to Emergency Petroleum Allocation Act of 1973 regulatory program actions. Additionally, this office processes Freedom of Information Act and Privacy Act appeals, conducts evidentiary hearings to determine employee security clearance eligibility, and processes requests for exception from DOE regulations and orders.

General Counsel Compliance Office - administers enforcement activities resulting from Emergency Petroleum Allocation Act of 1973 violations.

Energy Information Administration

National Energy Information Systems - functioning as an independent statistical/analytical agency, develops and maintains a comprehensive energy database, publishes a wide variety of energy reports and analyses as required by law and responds to energy information inquiries from DOE decision- and policy-makers, the Congress, other government entities, industry, and the general public. Information disseminated includes data on energy reserves, production, distribution, consumption, prices, technology, and related international economic and financial market information.

Federal Energy Regulatory Commission

Natural Gas and Oil Regulation - ensures that natural gas and oil pipelines provide reliable service at just and reasonable rates, that rates appropriately respond to competitive market signals, and that the infrastructure is developed in an environmentally acceptable way to serve new markets.

Hydropower Regulation - ensures water resource developments are safely constructed, operated, and maintained consistent with environmental values and public interests, including project licensing, dam safety, project compliance, and the investigation and assessment of headwater benefits.

Electric Power Regulation - regulates interstate transmission and sale of electricity by investor owned utility companies and addresses related market-based issues such as mergers, wheeling, pooling, and cogenerating.

Performance Measures

Improving Services to Customers and Stakeholders
Develop techniques to improve delivery of services and products to customers and stakeholders.

Goals:	*FY 1996 Results:*
Eliminating the 1993 and 1994 backlog of 208 Freedom of Information Act (FOIA) cases.	*In January 1996, the Freedom of Information Act (FOIA)/ Privacy Act Office announced its current backlog reduction initiative, which targets completion of requests received in 1993 and 1994 by the end of the fiscal year. Of the 208 cases identified, 148 have been completed, 21 have been referred to other agencies, and 39 remain pending within our program offices.*
Centralizing FOIA/Privacy Headquarters Operations to ensure compliance with 10-day statutory response time.	*As part of the Strategic Alignment Initiative (SAI), it was agreed that centralizing Headquarters FOIA/Privacy Act processing activity into one office would improve customer service. However, in the face of congressionally imposed budgetary constraints, a modified centralization pilot was implemented on April 1, 1996. This pilot utilized existing FOIA/Privacy Act staff augmented by four detailees from program offices. Eight of twenty-two program offices are participating in the pilot. Since the pilot was implemented, 70 centralized requests have been received. 42 requests are completed, and the average processing time was 30 days. Interim/partial responses have been forwarded for the remaining 28 requests.*

Involving Stakeholders in the Policy Making Process

Assure that the business of DOE will be open to the full view and input of those whom it serves, consistent with applicable laws, regulations, and contracts.

Goals:	*FY 1996 Results:*
Ensuring that Environmental Management (EM) decisions consider the input of site specific groups.	*DOE has undertaken two initiatives that ensure considering input from site-specific groups: Site-Specific Advisory Boards (SSAB) and Public Participation in the FY 1998 EM Budget. The SSABs provide EM with advice on policy issues and help ensure that stakeholder input is given fair and adequate consideration in EM decisions. Nearly 70 percent of SSAB participants feel that the SSABs have provided informed advice to DOE. Also, all steps for involving the public in the FY 1998 budget formulation process have been completed on time.*
Completing a third national survey of DOE stakeholders' attitudes, needs, and expectations of DOE by July 1996 to assess the Department's progress against the FY 1993 baseline.	*Two surveys (1992 & 1994) have shown remarkable progress; this third survey will keep DOE focused on continual improvement. The due date for completing interviews for the Trust and Confidence Survey has been postponed until December 1996/ January 1997 to be consistent with the timing of the last two national surveys.*

Streamlining Management Structure

Reduce management layers and encourage employee empowerment.

Goals:	*FY 1996 Results:*
Increasing the worker to supervisor ratio to 11:1 from a ratio of 7.9:1 in September 1995.	*As of September 28, 1996, DOE's employee to supervisor ratio was 8.5:1, improving from the end of FY 1995 ratio of 7.9:1. It should be noted that, since FY 1993, DOE has decreased its number of supervisors from 3,345 to 1,758 (47 percent).*
Decreasing the number of employees in senior level positions (SESs, GS-15s, and 14s) by 194 from 5,568 at the end of FY 1995.	*As of September 28, 1996, the number of senior level positions was 5,479, a reduction of 89 positions.*

Recruiting, Rewarding and Retaining Technical Excellence

Use personnel tools to attract and retain technical excellence in managing defense nuclear facilities.

Goals:	*FY 1996 Results:*
Fully implementing the Technical Qualifications Program by December 1995 to cover all 2,800 technical employees involved in managing defense nuclear facilities.	*The Office of Human Resources and Administration is tracking the employees who meet the Technical Qualifications Standards. The Technical Qualification Program was implemented May 31, 1996, across DOE at Defense Nuclear Facilities.*
Updating all Individual Development Plans for the technical employees of defense nuclear facilities to incorporate the Technical Qualifications Program competencies.	*Individual Development Plans for employees at defense nuclear facilities have been updated to include Technical Qualification Standards.*

Increasing the technical to non-technical ratio for defense nuclear related positions to 1:0.8 by December 1996, from a ratio of 1:0.85 in December 1995.	*Critical unmet technical safety staffing needs have been identified. Fifty-five positions (75 percent) will be filled by December 1996. The technical to non-technical hiring ratio will then be 1:0.8.*

Providing Transition Assistance to Employees

Offer career transition assistance to minimize the impacts of downsizing on Department employees.

Goals:	*FY 1996 Results:*
Expanding services of the Career Management Resource Center to provide transition assistance to Headquarters employees by: - *Increasing the number of employees served by 20 percent from 3,235 in FY 1995 to 3,880 in FY 1996, and*	*The Career Management Resource Center experienced a 26 percent increase in the number of visitations during FY 1996 (4,085) when compared to the total for FY 1995 (3,235). The Center exceeded the success measure of 3,880 visitors for the fiscal year.*
- *Increasing the number of workshops to aid employees in actions related to career transition by over 40 percent; from 22 workshops in FY 1995 to 36 in FY 1996.*	*The number of workshops to aid employees in actions related to career transition exceeded the target of 36 for FY 1996. The number of these workshops increased from 22 in FY 1995 to 37 in FY 1996. The Career Center also sponsored 22 workshops related to professional development.*
Increasing Departmental field sites with transition assistance services from 4 in FY 1995 to 13 in FY 1996 as needed.	*As of October 15, 1996, 13 Department of Energy sites reported that they had established career transition services, and two more sites intend to establish such services in FY 1997.*

Setting a New High Standard in Contract Management

Establish a new legacy of improved contracting through the Department's solicitations and negotiations, facilitating privatization activities, and ensuring translation of contract reform into Department policies, procedures, and guidance.

Goals:	*FY 1996 Results:*
Selecting contractors and incorporating contract reforms into contracts for four sites and for the 15 DOE facilities whose contracts are to be extended in FY 1996.	*Contract extensions, selections, and reforms have been made at nine DOE facilities; DOE will compete three contracts at Oak Ridge and close out contract work at Pinellas and the Laboratory of Radiobiological and Environmental Health; cooperative agreements were put in place at the Inhalation Toxicology Research Institute and Savannah River Ecology Laboratory; and a solicitation was issued at Mound.*
Developing Departmental policy on privatization by April 1996.	*The final draft of the DOE policy privatization is in final review.*
Issuing a solicitation to privatize the treatment of tank waste at Hanford by February 1996.	*The solicitation was issued on schedule in February 1996.*
Publishing a proposed rule making by April 1996 which reflects Departmental policies on competition, contractor accountability, contractor fees, and make-or-buy decisions.	*The rule making was published in June 1996 in the Federal Register which covers DOE policies on competition, contractor accountability, and make-or-buy decisions. The policy on contractor fees is still under deliberation.*
Reducing support service contracts to $610 million by September 1996 from an FY 1994 baseline of $700 million.	*The savings for FY 1996 are $184 million; $94 million more than the target.*

Reducing Federal Regulations

Eliminate unnecessary prescriptive requirements as well as nonessential processes, reports, forms, and directives.

Goals:	*FY 1996 Results:*
Reducing the number of DOE operations offices' field directives from 856 in FY 1995 to 290 in FY 1996; a 66 percent decrease. Overall, the number of directives will have been reduced by 80 percent since this effort began in FY 1993.	*In reducing their overall field directives inventory to 200, the operations offices have exceeded the reduction goal. This represents an 86 percent reduction from the FY 1993 baseline.*
Achieving an additional 10 percent reduction in the number of Headquarters directives from 156 in FY 1995 to 140 in FY 1996.	*As of September 30, 1996, 22 Headquarters directives were eliminated, representing a 14 percent reduction.*
Reporting operational improvements realized as a result of the directives reduction efforts.	*Operational impacts resulting from DOE directives reduction efforts have been identified via a cross-cutting DOE team, led by the Office of Human Resources and Administration. Significant cost savings and delegations of authority associated with the Department's Work for Others and environment, safety, and health compliance programs are anticipated. The pilot of directives cost impact model identified $114 million savings over 5 years.*

Reducing the Oversight Burden on Field Activities

Improve the efficiency of DOE oversight of field offices, laboratories, and major contractors by consolidating oversight visits and simplifying technical reviews.

Goals:	*FY 1996 Results:*
Improving the business management review process for field activities by reducing the number of oversight visits by 80 percent and associated costs by $10 million.	*The number of oversight visits at laboratories have decreased 94 percent from 343 to 21, saving $7 million to date. Data from non-laboratory contractors is pending; savings in excess of $3 million are expected.*
Improving the technical review oversight process for the national laboratories by reducing the number of reviews and overall cost of oversight.	*A pilot for Simplification of Technical Reviews of DOE National Labs is being implemented during CY 1996 at Argonne, Sandia, and National Renewable Energy Laboratory. Joint planning of reviews by program and laboratory managers with cognizance of program offices will assist the improvement of review procedures.*
Improving the program supported Environment, Safety, and Health (ES&H) oversight process at six pilot laboratories and reducing associated costs by 30 percent.	*Major accomplishments in FY 1996 include: reducing the number of program supported ES&H oversight assessments; reducing costs by approximately 30 percent; improving ES&H performance measures, and improving feedback on performance.*

Extending Use of DOE Lands and Facilities

Initiate comprehensive planning to integrate life cycle asset management goals of stakeholders and the Department and to determine ways to broaden the use of DOE lands and facilities.

Goals:	*FY 1996 Results:*
Initiating comprehensive land use planning processes at 40 of the Department's 50 major sites to set the context	*Forty-two of the Department's 50 major sites initiated comprehensive land use planning processes to set the*

for future use decisions and to reduce duplicative planning efforts.	*context for future use decisions and to reduce duplicative planning efforts. Comprehensive land use planning is not applicable at the remaining eight sites at this time.*
Completing at least ten major actions to make land and facilities available for broader public use.	*DOE completed over 35 major actions to make land and facilities available for broader public use.*

Improving Management Practices at the Department of Energy's Laboratories

Focus and clarify the missions of DOE laboratories to simplify oversight practices and adopt "best business practices" to ensure efficient operations.

Goals:	*FY 1996 Results:*
Reducing laboratory operating cost by $264 million in FY 1996 towards the goal of reducing these costs by $1.6 billion over the next five years.	*DOE has reduced laboratory operating costs by $264 million. This reduction is reflected in the FY 1996 budget request.*
Establishing with the Laboratory Operations Board by February 1996: - *a process to define the missions of each multi-program laboratory, and* - *a process to validate missions and privatization options for each single program and special mission laboratory.*	*This measure was completed when the Laboratory Operations Board Report, "Strategic Laboratory Missions Plan - Phase I," was issued in June 1996.*